



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/889,913	12/13/2001	Kineo Matsui	MES1P043	3027
22434	7590	10/11/2007		
BEYER WEAVER LLP			EXAMINER	
P.O. BOX 70250			HENNING, MATTHEW T	
OAKLAND, CA 94612-0250				
			ART UNIT	PAPER NUMBER
			2131	
			MAIL DATE	DELIVERY MODE
			10/11/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/889,913

Applicant(s)

MATSUI, KINEO

Examiner

Matthew T. Henning

Art Unit

2131

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 July 2007.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5 and 7-20 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-3,5 and 7-20 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 23 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Art Unit: 2131

1 This action is in response to the communication filed on 7/27/2007.

2 **DETAILED ACTION**

3 *Response to Arguments*

4 Applicant's arguments filed 7/27/2007 have been fully considered but they are not
5 persuasive.

6 Regarding applicant's argument that the examiner has not addressed arguments with
7 regards to the Bhaskaran prior art reference, the examiner notes that Bhaskaran has not been
8 relied upon in rejecting the claims and therefore the arguments are moot. Therefore the examiner
9 has not addressed these particular arguments.

10 In response to applicant's argument that the references fail to show certain features of
11 applicant's invention, it is noted that the features upon which applicant relies (i.e., considering
12 the relationship between quantized coefficients of adjacent blocks; embedding a digital
13 watermark into a non-zero high-frequency component excluding a DC component) are not
14 recited in the rejected claim(s). Although the claims are interpreted in light of the specification,
15 limitations from the specification are not read into the claims. See *In re Van Geuns*, 988
16 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). As such, the examiner has not further addressed
17 these arguments.

18 Regarding applicant's argument that Inoue does not compare coefficients between
19 blocks, the examiner does not find the argument persuasive. As previously stated on page 2 of
20 the office action mailed June 12, 2006, although Inoue does not explicitly state that the blocks
21 are "compared", Inoue does disclose determining the "mean" of the coefficients of the blocks, as
22 can be seen in Col. 46 Lines 5-15 as well as Fig 14. Calculating the mean coefficient of a group

Art Unit: 2131

1 of blocks is a comparison of all the blocks in order to determine the average coefficient between
2 the group of blocks, and as such falls within the scope of comparing coefficients between at least
3 two blocks. This is analogous to finding the average height of the students of a classroom, in
4 which the heights of the students must be compared in order to determine the average height.
5 Furthermore, as seen in Col. 46 Lines 16-30, the mean coefficient is used in the embedding
6 process. Further still, the blocks have a predetermined relationship in that they are from the same
7 input image. Therefore, the examiner does not find the argument persuasive.

8 The examiner notes that the newly added limitations of the claim language appear to
9 describe nothing more than common properties of JPEG compressed image data, and as such
10 have been addressed accordingly below.

11 All objections and rejections not set forth below have been withdrawn.

12 Claims 1-3, 5, and 7-20 have been examined.

13 *Drawings*

14 The drawings are objected to under 37 CFR 1.83(a). The drawings must show every
15 feature of the invention specified in the claims. Therefore, the "wherein embedding the bit
16 information is carried out when the coefficients corresponding to a component having a
17 frequency greater than a predetermined value, out of the quantized coefficients of respective
18 blocks, are set to zero due to data compression, and quantized coefficients of the at least two
19 blocks, which exclude coefficients representing a DC component, are not all equal to zero" must
20 be shown or the feature(s) canceled from the claim(s). **No new matter should be entered.**

21 Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to
22 the Office action to avoid abandonment of the application. Any amended replacement drawing

Art Unit: 2131

1 sheet should include all of the figures appearing on the immediate prior version of the sheet,
2 even if only one figure is being amended. The figure or figure number of an amended drawing
3 should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure
4 must be removed from the replacement sheet, and where necessary, the remaining figures must
5 be renumbered and appropriate changes made to the brief description of the several views of the
6 drawings for consistency. Additional replacement sheets may be necessary to show the
7 renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an
8 application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"
9 pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will
10 be notified and informed of any required corrective action in the next Office action. The
11 objection to the drawings will not be held in abeyance.

Specification

13 The specification is objected to as failing to provide proper antecedent basis for the
14 claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the
15 following is required: In this case, the applicant has failed to show where, in the specification,
16 support for the limitation of "wherein embedding the bit information is carried out when the
17 coefficients corresponding to a component having a frequency greater than a predetermined
18 value, out of the quantized coefficients of respective blocks, are set to zero due to data
19 compression, and quantized coefficients of the at least two blocks, which exclude coefficients
20 representing a DC component, are not all equal to zero" can be found, and the examiner is
21 unable to find proper support for this newly added limitation. See the rejection of the claims
22 under 35 USC 112 1st Paragraph below.

Art Unit: 2131

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-3, 5, and 7-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this case, the applicant has failed to show where, in the specification, support for the limitation of “wherein embedding the bit information is carried out when the coefficients corresponding to a component having a frequency greater than a predetermined value, out of the quantized coefficients of respective blocks, are set to zero due to data compression, and quantized coefficients of the at least two blocks, which exclude coefficients representing a DC component, are not all equal to zero” can be found, and the examiner is unable to find proper support for this newly added limitation. As such, the ordinary person skilled in the art would be unable to ascertain whether the applicant was in possession of the invention as claimed at the time of application. Therefore, the claims are rejected for failing to meet the written description requirement of 35 USC 112 1st Paragraph.

Claim Rejections - 35 USC § 103

Art Unit: 2131

1 The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
2 obviousness rejections set forth in this Office action:

3 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
4 section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
5 such that the subject matter as a whole would have been obvious at the time the invention was made to a person
6 having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the
7 manner in which the invention was made.
8

9 Claims 1-3, 7-8, 13-14, and 17-20 are rejected under 35 U.S.C. 103(a) as being
10 unpatentable over Inoue et al. (US Patent Number 6,477,276) hereinafter referred to as Inoue, as
11 evidenced by Wallace ("The JPEG Still Picture Compression Standard").

12 Regarding claim 1, Inoue disclosed a method of embedding a digital watermark in a
13 master image (See Inoue Abstract and Figs. 12-14), said embedding method comprising the steps
14 of: extracting blocks of a predetermined size from said master image (See Inoue Col. 45 Line 66
15 – Col. 46 Line 2); processing image data corresponding to each block by orthogonal transform
16 (See Inoue Col. 46 Lines 2-5); comparing orthogonal transformed coefficients between at least
17 two blocks having a predetermined relationship with each other (See Inoue Col. 46 Lines 5-15)
18 and making the coefficients satisfy a preset order of magnitude according to bit information
19 specified as the digital watermark(See Inoue Col. 46 Lines 16-30); quantizing the coefficients
20 obtained by the orthogonal transform with a quantization table and using the quantized
21 coefficients to embed the bit information (See Inoue Col. 46 Lines 9-39), and processing each
22 block with the embedded bit information by inverse orthogonal transform, so as output a
23 resulting image with digital watermark embedded therein (See Inoue Col. 46 Lines 30-39), but
24 failed to specifically disclose wherein embedding the bit information is carried out when the
25 coefficients corresponding to a component having a frequency greater than a predetermined
26 value, out of the quantized coefficients of respective blocks, are set to zero due to data

Art Unit: 2131

1 compression, and quantized coefficients of the at least two blocks, which exclude coefficients
2 representing a DC component, are not all equal to zero. However, Inoue did disclose
3 determining a mean, or the average, between coefficients (See Inoue Col. 46 Lines 16-30), which
4 implies that the coefficients have values other than zero.

5 Further, it was well known in the art at the time of invention that JPEG was a type of
6 compressed image file which contained image data. As such, it would have been obvious to the
7 ordinary person skilled in the art at the time of invention to have utilized the image data
8 embedding teachings on JPEG image data, in order to embed watermarks into JPEG image data.
9 In such a scenario, where the input image data has been JPEG compressed, it is obvious that the
10 common properties of JPEG compressed data would be found in the image data, such as the
11 coefficients corresponding to a component having a frequency greater than a predetermined
12 value, out of the quantized coefficients of respective blocks, are set to zero due to data
13 compression, and quantized coefficients of the at least two blocks, which exclude coefficients
14 representing a DC component, are not all equal to zero. These common JPEG properties are
15 evidenced by Wallace, as can be seen in Fig. 10 on Page 12 of Wallace. Fig. 10(e), in particular,
16 shows an example of JPEG compressed data in Discrete Cosine Transformed form, and it is clear
17 that not only is the DC component (upper leftmost number 240) is non-zero, but so are some of
18 the lower frequency AC components, while the high frequency components are zero. Again, this
19 is simply a feature of JPEG compression and is important to JPEG compression for the data to be
20 compressible. As such, it would have been obvious to the ordinary person skilled in the art to
21 have used JPEG compressed image data in the watermarking system of Inoue, as well as it would
22 have been obvious that the JPEG compressed image data would have had the claimed properties.

1 Regarding claim 17, Inoue disclosed an apparatus of embedding a digital watermark in a
2 master image (See Inoue Abstract and Figs. 12-14), said digital watermark embedding apparatus
3 comprising: block extraction means that extracts blocks of a predetermined size from said master
4 image (See Inoue Col. 45 Line 66 – Col. 46 Line 2); transformation means that processes image
5 data corresponding to each block by orthogonal transform (See Inoue Col. 46 Lines 2-5); bit
6 information embedding means that compares orthogonal transformed coefficients between at
7 least two blocks having a predetermined relationship with each other (See Inoue Col. 46 Lines 5-
8 15) and making the coefficients satisfy a preset order of magnitude according to bit information
9 specified as the digital watermark, so as to embed the information (See Inoue Col. 46 Lines 16-
10 30); quantizing the coefficients obtained by the orthogonal transform with a quantization table
11 and using the quantized coefficients to embed the bit information (See Inoue Col. 46 Lines 9-39),
12 and output means that processes each block with the embedded bit information by inverse
13 orthogonal transform, so as output a resulting image with digital watermark embedded therein
14 (See Inoue Col. 46 Lines 30-39), but failed to specifically disclose wherein embedding the bit
15 information is carried out when the coefficients corresponding to a component having a
16 frequency greater than a predetermined value, out of the quantized coefficients of respective
17 blocks, are set to zero due to data compression, and quantized coefficients of the at least two
18 blocks, which exclude coefficients representing a DC component, are not all equal to zero.
19 However, Inoue did disclose determining a mean, or the average, between coefficients (See
20 Inoue Col. 46 Lines 16-30), which implies that the coefficients have values other than zero.

21 Further, it was well known in the art at the time of invention that JPEG was a type of
22 compressed image file which contained image data. As such, it would have been obvious to the

1 ordinary person skilled in the art at the time of invention to have utilized the image data
2 embedding teachings on JPEG image data, in order to embed watermarks into JPEG image data.
3 In such a scenario, where the input image data has been JPEG compressed, it is obvious that the
4 common properties of JPEG compressed data would be found in the image data, such as the
5 coefficients corresponding to a component having a frequency greater than a predetermined
6 value, out of the quantized coefficients of respective blocks, are set to zero due to data
7 compression, and quantized coefficients of the at least two blocks, which exclude coefficients
8 representing a DC component, are not all equal to zero. These common JPEG properties are
9 evidenced by Wallace, as can be seen in Fig. 10 on Page 12 of Wallace. Fig. 10(e), in particular,
10 shows an example of JPEG compressed data in Discrete Cosine Transformed form, and it is clear
11 that not only is the DC component (upper leftmost number 240) is non-zero, but so are some of
12 the lower frequency AC components, while the high frequency components are zero. Again, this
13 is simply a feature of JPEG compression and is important to JPEG compression for the data to be
14 compressible. As such, it would have been obvious to the ordinary person skilled in the art to
15 have used JPEG compressed image data in the watermarking system of Inoue, as well as it would
16 have been obvious that the JPEG compressed image data would have had the claimed properties.

17 Regarding claim 19, Inoue disclosed a recording medium in which a program for
18 embedding a digital watermark in a master image is recorded in a computer readable manner(See
19 Inoue Abstract and Figs. 12-14), said program causing a computer to attain the functions of:
20 extracting blocks of a predetermined size from said master image (See Inoue Col. 45 Line 66 –
21 Col. 46 Line 2); processing image data corresponding to each block by orthogonal transform
22 (See Inoue Col. 46 Lines 2-5); comparing orthogonal transformed coefficients between at least

Art Unit: 2131

1 two blocks having a predetermined relationship with each other (See Inoue Col. 46 Lines 5-15)
2 and making the coefficients satisfy a preset order of magnitude according to bit information
3 specified as the digital watermark, so as to embed the information (See Inoue Col. 46 Lines 16-
4 30); quantizing the coefficients obtained by the orthogonal transform with a quantization table
5 and using the quantized coefficients to embed the bit information (See Inoue Col. 46 Lines 9-39),
6 and processing each block with the embedded bit information by inverse orthogonal transform,
7 so as output a resulting image with digital watermark embedded therein (See Inoue Col. 46 Lines
8 30-39), but failed to specifically disclose wherein embedding the bit information is carried out
9 when the coefficients corresponding to a component having a frequency greater than a
10 predetermined value, out of the quantized coefficients of respective blocks, are set to zero due to
11 data compression, and quantized coefficients of the at least two blocks, which exclude
12 coefficients representing a DC component, are not all equal to zero. However, Inoue did disclose
13 determining a mean, or the average, between coefficients (See Inoue Col. 46 Lines 16-30), which
14 implies that the coefficients have values other than zero.

15 Further, it was well known in the art at the time of invention that JPEG was a type of
16 compressed image file which contained image data. As such, it would have been obvious to the
17 ordinary person skilled in the art at the time of invention to have utilized the image data
18 embedding teachings on JPEG image data, in order to embed watermarks into JPEG image data.
19 In such a scenario, where the input image data has been JPEG compressed, it is obvious that the
20 common properties of JPEG compressed data would be found in the image data, such as the
21 coefficients corresponding to a component having a frequency greater than a predetermined
22 value, out of the quantized coefficients of respective blocks, are set to zero due to data

Art Unit: 2131

1 compression, and quantized coefficients of the at least two blocks, which exclude coefficients
2 representing a DC component, are not all equal to zero. These common JPEG properties are
3 evidenced by Wallace, as can be seen in Fig. 10 on Page 12 of Wallace. Fig. 10(e), in particular,
4 shows an example of JPEG compressed data in Discrete Cosine Transformed form, and it is clear
5 that not only is the DC component (upper leftmost number 240) is non-zero, but so are some of
6 the lower frequency AC components, while the high frequency components are zero. Again, this
7 is simply a feature of JPEG compression and is important to JPEG compression for the data to be
8 compressible. As such, it would have been obvious to the ordinary person skilled in the art to
9 have used JPEG compressed image data in the watermarking system of Inoue, as well as it would
10 have been obvious that the JPEG compressed image data would have had the claimed properties.

11 Regarding claim 13, Inoue disclosed a method of decoding a digital watermark from a
12 master image with the digital watermark embedded therein (See Inoue Fourth Embodiment
13 Beginning in Col. 48), said decoding method comprising the steps of: extracting blocks of a
14 predetermined size from said master image (See Inoue Col. 48 Lines 54-62 and Col. 45 Line 66
15 – Col. 46 Line 2); processing image data corresponding to each block by orthogonal transform
16 (See Inoue Col. 48 Lines 54-62 and Col. 46 Lines 2-5); and comparing orthogonal transformed
17 coefficients between at least two blocks having a predetermined relationship with each other
18 (See Inoue Col. 48 Lines 62-67 and Col. 46 Lines 5-15) and extracting bit information, based on
19 a preset order of magnitude that is applied to the coefficients (See Inoue Col. 49 Lines 28-38).

20 Regarding claim 18, Inoue disclosed an apparatus of decoding a digital watermark from
21 a master image with the digital watermark embedded therein (See Inoue Fourth Embodiment
22 Beginning in Col. 48), said digital watermark decoding apparatus comprising: block extraction

Art Unit: 2131

1 means that extracts blocks of a predetermined size from said master image (See Inoue Col. 48
2 Lines 54-62 and Col. 45 Line 66 – Col. 46 Line 2); transformation means that processes image
3 data corresponding to each block by orthogonal transform (See Inoue Col. 48 Lines 54-62 and
4 Col. 46 Lines 2-5); and bit information extracting means that compares orthogonal transformed
5 coefficients between at least two blocks having a predetermined relationship with each other
6 (See Inoue Col. 48 Lines 62-67 and Col. 46 Lines 5-15) and extracting bit information, based on
7 a preset order of magnitude that is applied to the coefficients (See Inoue Col. 49 Lines 28-38).

8 Regarding claim 20, Inoue disclosed a recording medium in which a program for
9 decoding a digital watermark from a master image with a digital watermark embedded therein is
10 recorded in a computer readable manner (See Inoue Fourth Embodiment Beginning in Col. 48),
11 said program causing a computer to attain the functions of: extracting blocks of a predetermined
12 size from said master image (See Inoue Col. 48 Lines 54-62 and Col. 45 Line 66 – Col. 46 Line
13 2); processing image data corresponding to each block by orthogonal transform (See Inoue Col.
14 48 Lines 54-62 and Col. 46 Lines 2-5); and comparing orthogonal transformed coefficients
15 between at least two blocks having a predetermined relationship with each other (See Inoue Col.
16 48 Lines 62-67 and Col. 46 Lines 5-15) and extracting bit information, based on a preset order of
17 magnitude that is applied to the coefficients (See Inoue Col. 49 Lines 28-38).

18 Regarding claims 2 and 14, Inoue disclosed that the predetermined relationship between
19 the at least two blocks is an arrangement of contiguity (See Inoue Fig. 13).

20 Regarding claim 3, Inoue disclosed that the orthogonal transform is a discrete cosine
21 transform (See Inoue Col. 6 Lines 4-7).

Art Unit: 2131

1 Regarding claim 7, Inoue disclosed introducing a logic function that is true when a
2 difference between the orthogonal transformed coefficients of the at least two blocks having the
3 predetermined relationship is in a preset range; and modifying a procedure adopted to embed the
4 bit information, based on the true and false state of the logic function (See Inoue Col. 47 Lines
5 32-36 and Col. 40 Lines 1-30).

6 Regarding claim 8, Inoue disclosed providing a secret key corresponding to each
7 coefficient (See Inoue Col. 47 Lines 32-36 and Col. 40 Lines 1-30 Logical Value), and
8 modifying the procedure adopted to embed the bit information, based on the secret key
9 corresponding to each coefficient and the true and false state of the logic function with regard to
10 the coefficient (See Inoue Col. 40 Lines 1-30).

11 Claims 5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue as
12 applied to claims 4 and 13 above, and further in view of Vora (US Patent Number 6,463,162).

13 Inoue disclosed embedding data in the coefficients of discrete cosine transformed blocks
14 (See Inoue Col. 46 Lines 1-39), but failed to disclose converting the image to the luminance-
15 chrominance space prior to applying DCT to the blocks.

16 Vora teaches that in order to increase the space available for embedding, an image should
17 be converted to the luminance-chrominance space prior to embedding (See Vora Col. 4 Lines 4-
18 10).

19 It would have been obvious to the ordinary person skilled in the art at the time of
20 invention to employ the teachings of Vora in the watermarking system of Inoue by converting
21 the image to the luminance-chrominance space prior to watermarking. This would have been

Art Unit: 2131

1 obvious because the ordinary person skilled in the art would have been motivated to increase the
2 increase the information content of the watermark.

3 Claims 9-10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue as
4 applied to claim 1 above, as evidenced by Johnson et al. ("Exploring Steganography: Seeing the
5 Unseen") hereinafter referred to as Johnson.

6 Inoue disclosed providing a basic pattern as information of the digital watermark (See
7 Inoue Col. 4 Lines 30-33), specifying each piece of binary information included in the provided
8 basic pattern as the bit information as the bit information to be embedded (See Inoue Col. 47
9 Lines 32-34), and embedding the binary information of the basic pattern by setting the at least
10 two blocks having the predetermined relationship to one unit (See Inoue Col. 47 Lines 34-47),
11 and that embedding the basic pattern in the image data was done iteratively a predetermined
12 number of times, when the number of elements constituting the basic pattern is greater than the
13 number of extracted blocks (See Inoue Col. 47 Lines 48-57), but failed to disclose that the basic
14 pattern was defined in a two-dimensional manner as a combination of binary information.

15 However, it was well known in the art at the time of invention that the watermark data to be
16 embedded into an image could also be an image and therefore it would have been obvious to the
17 ordinary person skilled in the art at the time of invention to have embedded an image into the
18 image data of Inoue.

19 This is evidenced by Johnson, wherein Johnson states that the data to be embedded in an
20 image can be anything that could be embedded into a bit stream, including plain text, ciphertext,
21 and other images (See Johnson Page 27 Col. 2 Lines 1-3).

22

Art Unit: 2131

1 Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue as
2 applied to claim 9 above, and further in view of Ohbuchi et al. ("Watermarking Three-
3 Dimensional Polygonal Modals"), hereinafter referred to as Ohbuchi.

4 Inoue disclosed embedding information (See rejection of claim 9 above), but failed to
5 disclose the information being a density pattern.

6 Ohbuchi teaches that density pattern embedding in polygonal models withstands
7 practically every geometrical transformation attack (See Ohbuchi Page 271 Col. 1 Section 3.5).

8 It would have been obvious to the ordinary person skilled in the art to employ the
9 teachings of Ohbuchi in the watermarking system of Inoue by using a density pattern as the
10 watermark. This would have been obvious because the ordinary person skilled in the art would
11 have been motivated to provide watermark protection to polygonal models as well as plain
12 images.

13 Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue as applied
14 to claim 13 above, and further in view of Rhoads (US Patent Number 6,122,403).

15 Inoue disclosed arranging the extracted bit information to restore the basic pattern; and
16 decoding the digital watermark from the basic pattern (See Inoue Col. 50 Lines 10-15), but failed
17 to disclose that the extracted information contained a repetitive pattern, or restoring such a
18 pattern.

19 Rhoads teaches that when watermarking an image, the watermark size should be small
20 and the mark should be repeated many times through the image (See Rhoads Col. 69 Paragraph
21 1).

7 Claims 1-3, 5, and 7-20 have been rejected.

11 A shortened statutory period for reply to this final action is set to expire THREE
12 MONTHS from the mailing date of this action. In the event a first reply is filed within TWO
13 MONTHS of the mailing date of this final action and the advisory action is not mailed until after
14 the end of the THREE-MONTH shortened statutory period, then the shortened statutory period
15 will expire on the date the advisory action is mailed, and any extension fee pursuant to 37
16 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,
17 however, will the statutory period for reply expire later than SIX MONTHS from the date of this
18 final action.


19 Any inquiry concerning this communication or earlier communications from the
20 examiner should be directed to Matthew T. Henning whose telephone number is (571) 272-3790.
21 The examiner can normally be reached on M-F 8-4.

Art Unit: 2131

1 If attempts to reach the examiner by telephone are unsuccessful, the examiner's
2 supervisor, Ayaz Sheikh can be reached on (571) 272-3795. The fax phone number for the
3 organization where this application or proceeding is assigned is 571-273-8300.

4 Information regarding the status of an application may be obtained from the Patent
5 Application Information Retrieval (PAIR) system. Status information for published applications
6 may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
7 applications is available through Private PAIR only. For more information about the PAIR
8 system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR
9 system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would
10 like assistance from a USPTO Customer Service Representative or access to the automated
11 information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

12
13
14
15
16
17
18
19 /Matthew Henning/
20 Assistant Examiner
21 Art Unit 2131
22 10/01/2007


AYAZ SHEIKH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100